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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

HAM, SEUNGSOOK

ART UNIT

PAPER NUMBER

2817

DATE MAILED: 11/15/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/040,376

Applicant(s)

GOMEZ ET AL. *ju*

Examiner

Seungsook Ham

Art Unit

2817

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 February 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 January 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

Drawings

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: vias 375a, 375b, 375c in figure 3C (see page 8, line 9) and first and second blocking strip 376, 377 in figure 3C (see page 12, last line). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Objections

Claims 10-12, 15 and 16 are objected to because of the following informalities:
in claim 10, line 7, after "output capacitor", -- ,-- should be inserted;
in claim 12, line 8, after "said second resonator", "." should be changed to --;--,
in claim 15, line 10, "," should be deleted. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 8, 10, 11, and 14-16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claims 8 and 10, "a precision substrate" cannot be understood as to what type of substrate would meet the term, "precision".

Art Unit: 2817

In claim 14, "the filter periphery" and "said signal bypassing" lack antecedent basis.

In claim 15, line 4, "said low noise amplifier" lacks antecedent basis; and last line, "said variable gain amplifier" is vague and indefinite as to whether it refers to "a variable gain amplifier" recited in line 3 or 14.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 13 and 14 are rejected under 35 U.S.C. 102(b) as being anticipated by Sogo et al. (US '926).

Sogo et al. (fig. 6) discloses a bandpass filter comprising : filtering means 4₁-4₄ coupled between an input and output for passing a desired frequency band to the output; frequency attenuating means 8₁, 8₂, 7 coupled between the input and output for attenuating a frequency component of the signal (see abstract), and shielding means 2 for shielding the filter periphery.

Claims 1 and 13 are rejected under 35 U.S.C. 102(b) as being anticipated by Makimoto et al. (US '396).

Makimoto et al. (figs. 1 and 8-10) discloses a bandpass filter comprising: a plurality of resonators 13-16, 703-706 that are electromagnetically coupled to each other, each resonator having a terminal coupled to a ground; a bypass line/frequency

Art Unit: 2817

attenuating means 22, 716 in parallel with the plurality of resonators, the bypass line having a bypass line input 23 coupled to a first resonator of said plurality of resonators and a bypass line output 24 coupled to a second resonator of the plurality of resonators; an input 11, 701 coupled to said first resonator; and an output 12, 702 coupled to the second resonator.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Makimoto et al. (US '396).

Providing shielding means for shield the filter is considered as an obvious modification since it is well known in the art to place the filter in a housing to protect the filter device.

Claims 2-4, 10 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Makimoto et al. (US '396) in view of Krause (US '285) or Shen (US '569).

Makimoto et al. is silent as to each resonator being a quarter wavelength transmission lines. However, Makimoto et al. teaches that each resonator is comprised of a lump constant or distributed constant type (col. 5, lines 12-14) and can be formed on a single printed circuit board (col. 6, lines 1-8). Moreover, it is well known in the art

Art Unit: 2817

that a resonator being grounded at one end forms a quarter wavelength transmission line.

Krause (figs. 4a-5b) discloses a bandpass filter having a plurality of resonators SpR_1 - SpR_4 and each resonator comprised of a quarter wavelength microstrip spiral transmission lines on a printed circuit board (col. 4, lines 55-64).

Shen (fig. 2A) also discloses a bandpass filter having a plurality of microstrip spiral resonators.

It would have been obvious to one of ordinary skill in the art to use a microstrip spiral resonator as the resonators in the device of Makimoto et al. since microstrip spiral resonators are well known in the art and to minimize the size for the filter device as taught by Krause (col. 1, lines 54-63) or Shen (see abstract).

Regarding to claim 4, Makimoto et al. (fig. 8) discloses an input capacitor 708 coupled between the input and the first resonator 703; and an output capacitor 712 or 713 coupled between the output put and the second resonator 706.

Regarding to claim 10, Makimoto et al. (fig. 8) also discloses first and second intercouplers 709-711.

Regarding to claim 12, it is obvious as a matter of design choice to provide an additional bandpass filter to form a differential bandpass filter since such design technique is well known in the art (see also Shen, fig. 8A).

Claims 5-9, 11 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Makimoto et al. (US '396) in view of Krause (US '285) or Shen (US

Art Unit: 2817

'569) as applied to claim 1-4 and 10 above, and further in view of Zhang et al. (US '394).

The modified device of Makimoto et al. lacks the input and output capacitors are printed finger capacitors. However, such capacitor is well known in the art. Zhang et al. (figs. 3 and 4). Therefore, it would have been obvious to one of ordinary skill in the art to use printed finger capacitors as the capacitors in the modified device of Makimoto et al. since such capacitor is well known in the art as shown by Zhang et al.

Regarding to claims 6-9, Makimoto et al. (figs. 8-10) discloses bypass line input and output couplers 714, 715, a third resonator 704 or 705 and can be formed on a single printed circuit board (col. 6, lines 1-8). It is inherent that the input and output impedance has a desired value.

Claims 15 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Domino et al. (US '752) or Chan et al. (US '665) in view of Makimoto et al. (US '396).

Domino et al. (fig. 1) discloses a conventional double conversion tuner having a differential bandpass filter 44. Chan et al. (fig. 1) also discloses a conventional double conversion tuner having a bandpass filter 24.

Domino et al. and Chan et al. do not show the specific structure of the bandpass filter.

Makimoto et al. (figs. 8-10) show a bandpass filter used in a communication device.

It would have been obvious to one of ordinary skill in the art to use the bandpass filter of Makimoto et al. as a bandpass filter in the device of Domino et al. or Chan et al. since both bandpass filter are functionally equivalent and also to provide a improved attenuation characteristic of the bandpass filter as taught by Makimoto et al. (see abstract).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Becker discloses a shielded printed circuit board using grounded vias;

Young et al. discloses a bandpass filter having interdigitated capacitors coupled to input and output resonators; and

Mostov discloses a LC filter on a printed circuit board.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Seungsook Ham whose telephone number is (703) 308-4090. The examiner can normally be reached on Monday - Thursday from 8:00 A.M. to 5:00 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert J. Pascal can be reached on (703)308-4909. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7724 for regular communications and (703) 308-7724 for After Final communications.

Art Unit: 2817

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0956.

A handwritten signature in black ink, appearing to be 'Seungsook Ham', written in a cursive style.

Seungsook Ham
Primary Examiner
Art Unit 2817

sh
November 5, 2002